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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,427	01/14/2004	Petteri Poyhonen	60279.00078	2678
32294 7590 07/02/2007 SQUIRE, SANDERS & DEMPSEY L.L.P. 14TH FLOOR 8000 TOWERS CRESCENT TYSONS CORNER, VA 22182			EXAMINER SHIN, KYUNG H	
			ART UNIT 2143	PAPER NUMBER
			MAIL DATE 07/02/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/756,427

Applicant(s)

POYHONEN, PETTERI

Examiner

Kyung H. Shin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/14/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is responding to application papers filed on **1-14-2004**.
2. Claims **1 - 22** are pending. Claims **1, 19** are independent.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim **1 - 22** are rejected under 35 U.S.C. 102(e) as being anticipated by **McCanne et al. (US Patent No. 6,415,323)**.

Regarding Claim 1, McCanne discloses a method for network layer load balancing for a server farm system, wherein the server farm system comprises at least one router and two servers connected to each other with a communication link, characterised in that the method comprises the steps of:

- a) configuring a service-specific anycast address to the server interfaces on the communication link; (see McCanne col. 4, lines 59-66: network layer load balance, services providing; col. 5, lines 21-25; col. 5, lines 58-60: anycast

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communications protocol (IPv6); col. 5, lines 7-10: server farm (cluster), process services based on load)

- b) sending from a server which is ready for offering the service an advertisement message to all nodes on the communication link, the advertisement message comprising at least the service-specific anycast address and the link-layer address of the server; (see McCanne col. 7, lines 34-40: server advertisement)
- c) receiving one or more advertisement messages from the server(s) with the router; (see McCanne col. 7, lines 34-40: information from content provider utilized to route packets)
- d) updating the neighbour cache entry in the router based on the information of the advertisement message(s); (see McCanne col. 7, lines 40-52: update router(s) with advertisement information) and
- e) sending service queries to the servers according to the information in the neighbour cache entry. (see McCanne col. 3, lines 60-67; col. 7, lines 34-45: send service queries to servers (content producers), based on router information)

Regarding Claim 2, McCanne discloses the method according to claim 1, characterised in that the advertisement message sending functionality in the servers is activated by a solicitation message from the router. (see McCanne col. 7, lines 34-40: routing information (advertisement) transfer from router to server)

Regarding Claim 3, McCanne discloses the method according to claim 1,

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characterised in that said updating of the neighbour cache entry is done by changing the link-layer address of the neighbour cache entry to the adverted link-layer address received in the advertisement message. (see McCanne col. 7, lines 34-45: update routing storage (cache) information)

Regarding Claim 4, McCanne discloses the method according to claim 1, characterised in that the Neighbour Discovery protocol is used wherein said solicitation message is a Neighbour Solicitation message and said advertisement message is an Unsolicited Neighbour Advertisement message where the override flag is set. (see McCanne col. 18, lines 19-24: neighbor discovery protocol; col. 9, lines 33-42; col. 9, line 61 - col. 10, line 2: service discovery utilizing DNS naming convention))

Regarding Claim 5, McCanne discloses the method according to claim 1, characterised in that the advertisement message is discarded in a router: if an entry for the target address does not exist; or if the neighbour cache entry is in a incomplete state; or if the target's link-layer address in the received advertisement message is the same as the current link-layer address in the neighbour cache entry. (see McCanne col. 7, lines 49-52: no target address for advertisement message due to server stop, another server selected)

Regarding Claim 6, McCanne discloses the method according to claim 1, characterised in that the method comprises the steps of:

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- a) monitoring the advertisement messages on the link and the service process in the server; (see McCanne col. 6, lines 8-15: monitor service) and
- b) delaying the sending of a new advertisement message if necessary. (see McCanne col. 7, lines 49-52: stop sending packets, server to router)

Regarding Claim 7, McCanne discloses the method according to claim 1, characterised in that if a server is not receiving any service queries in a predefined time interval: stopping the sending of the advertisement messages; and switching to the standby mode. (see McCanne col. 7, lines 49-52: advertisement message(s) stopped)

Regarding Claim 8, McCanne discloses the method according to claim 7, characterised in that if a server being in the standby mode receives a solicitation message, the sending of the advertisement messages continues. (see McCanne col. 7, lines 34-40: send advertisement message(s))

Regarding Claim 9, McCanne discloses the method according to claim 1, characterised in that when the service process in a server stops, sending of the advertisement messages is stopped. (see McCanne col. 7, lines 49-52: service stops, advertisement stops)

Regarding Claim 10, McCanne discloses the method according to claim 1, characterised in that the OSPFv6 protocol is used in the communication between the

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router and the servers. (see McCanne col. 5, lines 21-25: col. 7, lines 42-52: IPv6 (anycast) communications, OSPF protocol)

Regarding Claim 11, McCanne discloses the method according to claim 1, characterised in that the method comprises the step of: sending an advertisement message with route cost values suitable for the current situation in the server. (see McCanne col. 18, lines 39-41; col. 19, lines 45-48: cost factor utilized in routing determination)

Regarding Claim 12, McCanne discloses the method according to claim 11, characterised in that increasing the route cost value if the server providing the service is getting congested. (see McCanne col. 18, lines 39-41; col. 18, lines 45-48: server congestion increased, cost factor utilized to determine server(s), look to more distant servers (increase route cost) to offload services)

Regarding Claim 13, McCanne discloses the method according to claim 11, characterised in that decreasing the route cost value if the server providing the service has capacity for new service queries. (see McCanne col. 18, lines 39-41; col. 18, lines 45-48: server congestion reduced, cost factor utilized to determine server to offload services)

Regarding Claim 14, McCanne discloses the method according to claim 1,

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characterised in that the advertising message is an OSPFv6 Link State Advertisement message. (see McCanne col. 5, lines 21-25: col. 7, lines 42-52: IPv6 (anycast) communications; col. 7, lines 34-40: advertisement messages (IPv6 communications))

Regarding Claim 15, McCanne discloses the method according to claim 1, characterised in that method comprises the steps of: recording all the advertisement messages with the router; creating a cache for several link-layer addresses per neighbour cache entry; and delivering the service queries to the servers in the cache in a predetermined way. (see McCanne col. 17, lines 50-58; col. 18, lines 55-56: information database for advertisement/load information; router storage (cache); col. 3, lines 48-54: deliver services)

Regarding Claim 16, McCanne discloses the method according to claim 1, characterised in that the method comprises the step of: sending an advertisement message with service load information. (see McCanne col. 12, lines 48-50; col. 12, lines 55-57: advertisement, load balance information)

Regarding Claim 17, McCanne discloses the method according to claim 1, characterised in that delivering the service load information of a server with a separate protocol. (see McCanne col. 18, line 64 - col. 19, line 8; col. 19, lines 11-13: delivery server load information, from information database, different protocol and procedure)

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Regarding Claim 18, McCanne discloses the method according to claim 1, characterised in that the service is the DNS service. (see McCanne col. 9, lines 33-42; col. 9, line 61 - col. 10, line 2: DNS (naming service) utilized in service provisioning)

Regarding Claim 19, McCanne discloses a server for network layer load balancing, wherein the server is connected to a communication link with which it receives messages from a router or other servers, wherein the server comprises at least:

- a) a service process (300) providing the service; (see McCanne col. 3, lines 48-54: provide a service)
- b) characterised in that the server comprises: a service-specific anycast address configured to the server interface (314) on the communication link; (see McCanne col. 5, lines 21-25; col. 5, lines 58-60: anycast (IPv6) address; col. 7, lines 34-40: service advertisement)
- c) monitoring means (304) for monitoring said service process (300) and the service-specific anycast address configured interface (314); (see McCanne col. 6, lines 8-15: monitoring service processing)
- d) service scheduling means (306) for scheduling the service process (300) and the need for an advertisement message; (see McCanne col. 7, lines 34-40: advertisement message(s) from server) and
- e) sending means (308) for sending an advertisement message when the service process (300) is able to provide the service. (see McCanne col. 7, lines 34-40: server advertisement, available service(s))

Regarding Claim 20, McCanne discloses the server according to claim 19, characterised in that the server comprises means (304) for enclosing a route cost value suitable for the current situation of the service process (300) in the server. (see McCanne col. 18, lines 39-41; col. 18, lines 45-48: route cost a factor in server selection)

Regarding Claim 21, McCanne discloses the server according to claim 19, characterised in that the server comprises means (304) for enclosing service load information in the advertisement message. (see McCanne col. 12, lines 48-50; col. 12, lines 55-57: routine message, load balance information transferred between routers)

Regarding Claim 22, McCanne discloses the server according to claim 19, characterised in that the service in the server is the DNS service. (see McCanne col. 9, lines 33-42; col. 9, line 61 - col. 10, line 2: DNS naming service utilize in service provisioning)

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyung H. Shin whose telephone number is (571) 272-3920. The examiner can normally be reached on 9:30 am - 6 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kyung Hye Shin
Patent Examiner
Art Unit 2143

Kyung Hye Shin

KHS
June 23, 2007